

Service Manual

Radio Cassette
RX-FM40
(Black)

Stereo Radio Cassette Recorder

This is the Service Manual for the following areas.

ME...For AAFES EUROPE.

MF...For AAFES PACIFIC.

- Please use this manual together with the service manual for model No. RX-FM40 order No. GAD8605033C1.
- This Service Manual indicates the main differences between; Original RX-FM40 **M** and RX-FM40 **ME** **MF** for AAFES EUROPE & PACIFIC.

■ SPECIFICATIONS

General:

Power Requirement: AC; 120 V, 60 Hz

RX-FM40 **M** (Original)



General:

Power Requirement: AC; 110~127/200~220/230~250 V, 50/60 Hz

RX-FM40 **ME** **MF**

■ PARTS COMPARISON TABLE

NOTES: 1. Important safety notice.

Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

2. The letter in the circle after the part name indicates the color of the part.

Ⓚ...Black

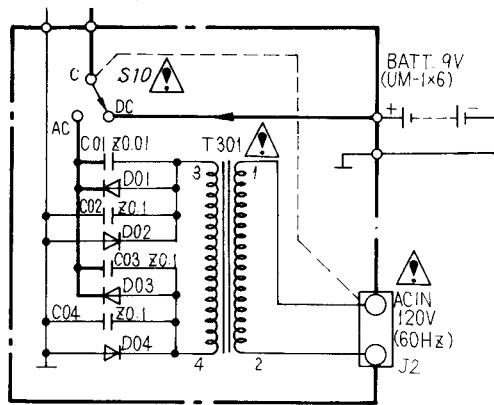
Ref. No.	Description	Part Number		Remarks
		RX-FM40 M (Original)	RX-FM40 ME MF	
T301	Power Transformer Δ	RLT5K3C9A	RLT5K3X5AJ	
S301	Rotary Switch, Voltage Selector Δ	—	RSR3A01Z	Added
K35	Rear Cabinet Ass'y Ⓚ	RYFXFM40M	RYFXFM40ME	
K44	Spring, Tuning Knob	RDS5032Z	RDS5036Z	
K54	Circuit Board (Power) Δ	RUPK62Z	RUPK70ZA	
A1	Power Cord, AC Δ	RJA22X	RJA21Z	
A3	Caution Card	—	RQX9379ZA	Added

Panasonic

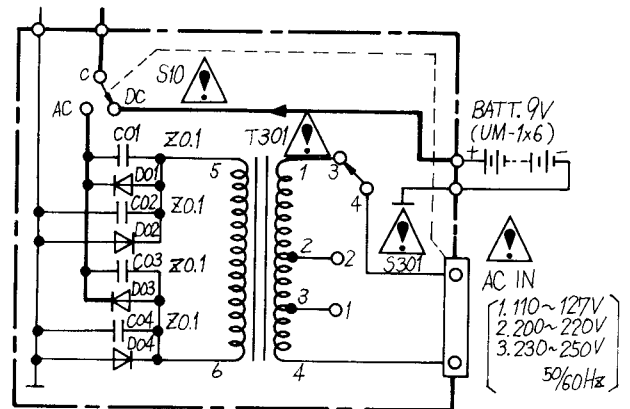
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SCHEMATIC DIAGRAM (POWER SUPPLY CIRCUIT)

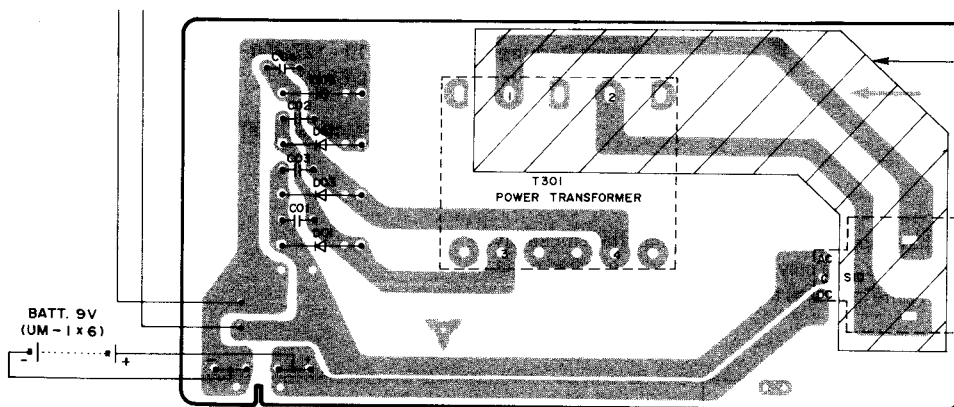


RX-FM40 [M] (Original)

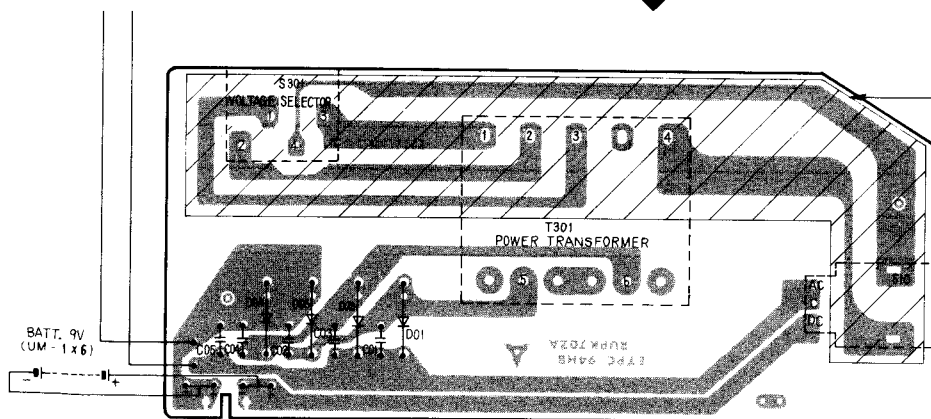


RX-FM40 [ME] [MF]

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (POWER SUPPLY CIRCUIT BOARD)



RX-FM40 [M] (Original)



RX-FM40 [ME] [MF]

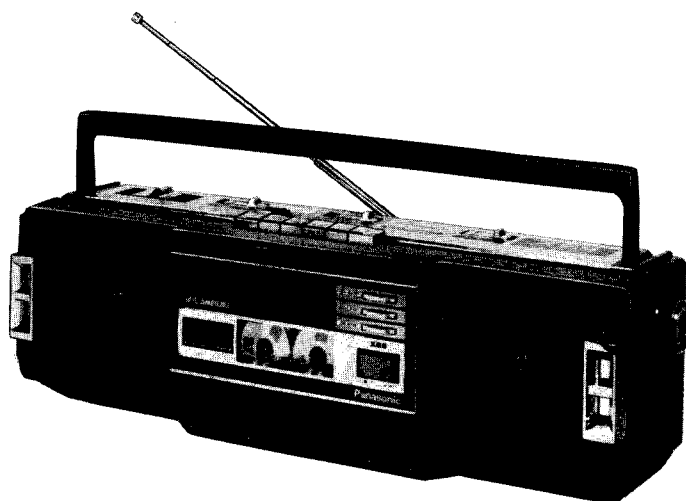
Service Manual

Radio Cassette

RX-FM40

(Black)

Stereo Radio Cassette Recorder



This is the Service Manual for the following areas.

M...For U.S.A.

C...For Canada

■ SPECIFICATIONS

General:

Power Requirement: AC; 120 V, 60 Hz
Battery; 9V (Six "D" Size Flashlight Batteries)
(Panasonic UM-1 or equivalent)

Power Consumption: 17 W (AC only)

Power Output: 8W (4W×2) ... RMS (max.)

Speaker: Woofer; 4" (10 cm) PM Dynamic Speaker (3Ω)
Tweeter; ¾" (2 cm) Ceramic Speaker (1 kΩ)
Extra Bass; 5 1/8" (13 cm)×2 5/16" (6 cm) PM Dynamic Speaker (8Ω)

Output: HEADPHONES; 32Ω, Ø3.5

Dimensions: 19 1/2" (W)×6 1/8" (H)×5 1 3/16" (D)
496 (W)×156 (H)×148 (D) mm

Weight: 6 lbs. 13.4 oz. (3.1 kg) without batteries

Radio Section:

Radio Frequency Range: FM; 88~108 MHz
AM; 525~1610 kHz

Intermediate Frequency: FM; 10.7 MHz
AM; 455 kHz

Sensitivity: FM; 4 µV/50 mW output (-3 dB Limit Sens)
AM; 100 µV/m/50 mW output

Tape Deck Section:

Frequency Response: 150~8,000 Hz

Recording System: DC bias, MAGNET erase

Track System: 4-track 2 channel stereo recording and playback

Weights and dimensions shown are approximate.
(Les poids et dimensions mentionnés sont approximatifs.)
Design and specifications are subject to change without notice.

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SAFETY PRECAUTIONS (For U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

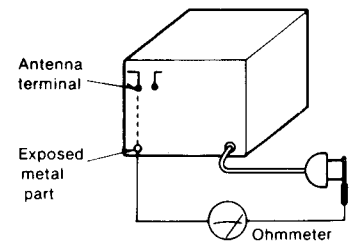


Fig. 1

Resistance = $3\text{M}\Omega$ — $5.2\text{M}\Omega$

INSULATION RESISTANCE TEST (For U.S.A.)

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads, antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3\text{M}\Omega$ and $5.2\text{M}\Omega$ to all exposed parts*. (Fig. 1) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. 2)
 * **Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

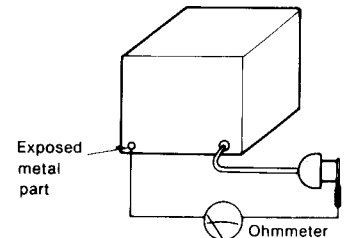
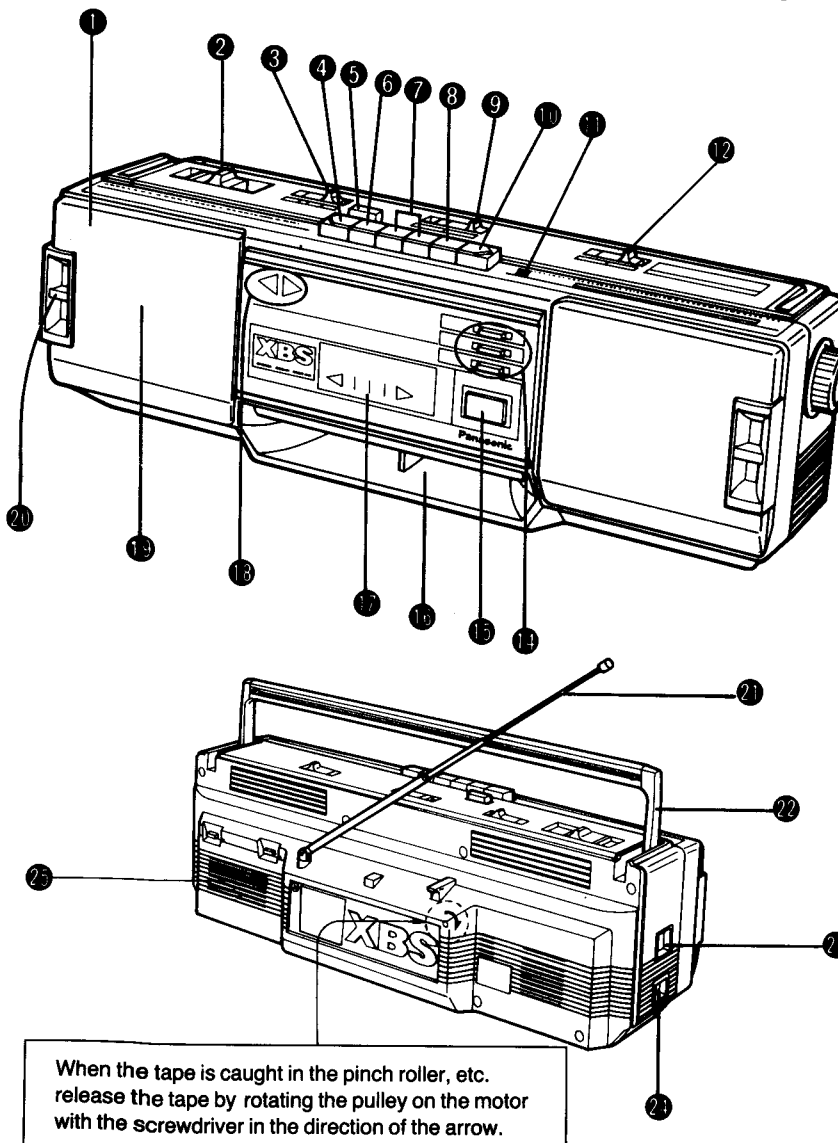


Fig. 2

Resistance = Approx ∞

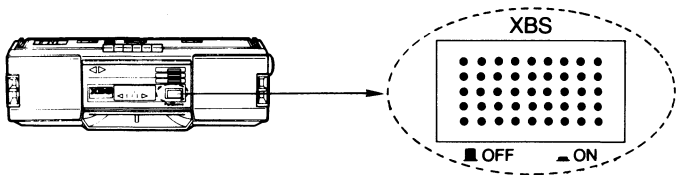
LOCATION OF CONTROLS AND COMPONENTS



When the tape is caught in the pinch roller, etc. release the tape by rotating the pulley on the motor with the screwdriver in the direction of the arrow.

- ① Built-in Microphone (MICROPHONE)
- ② Volume Control (VOLUME)
- ③ Function Selector (SELECTOR)
- ④ Pause Button (II PAUSE)
- ⑤ Direction Button (DIRECTION)
- ⑥ Stop/Eject Button (STOP/EJECT)
- ⑦ Fast Buttons (◀▶ FAST)
- ⑧ Playback Button (▶ PLAY)
- ⑨ Reverse Mode Selector (REVERSE MODE)
- ⑩ Record Button (● REC)
- ⑪ FM Stereo Indicator (FM STEREO)
- ⑫ Ambience Switch (AMBIENCE)
- ⑬ Tuning Control (TUNING)
- ⑭ Combination Equalizer Switches (EQUALIZER)
- ⑮ Extra Bass Switch (XBS)
- ⑯ Extra Bass Speaker [$5\frac{1}{8}$ " (13 cm) $\times$ $2\frac{5}{16}$ " (6 cm) 8Ω]
- ⑰ Cassette Compartment
- ⑱ Direction/Power/Battery Check Indicators (POWER/BATT)
- ⑲ Speakers (Woofer) [4" (10 cm) 3Ω]
- ⑳ Speakers (Tweeter) [$\frac{3}{4}$ " (2 cm) $1\text{ k}\Omega$]
- ㉑ Telescopic Antenna
- ㉒ Handle
- ㉓ Headphones Jack (PHONES) $32\Omega/\phi 3.5$
 When using the headphones, avoid listening to sound for a long period of time and avoid excessive volume levels, which may injure your ears. (Optional headphones; EAH-S10)
- ㉔ AC Socket (AC IN ~)
- ㉕ Battery Compartment

EXTRA BASS SYSTEM (XBS)



- When the switch is set to "ON", the dynamic low frequency ranges are boosted.
- To get more dynamic low frequency sounds press the Extra Bass Switch and Low Boost Button, too.

BATTERY SERVICE LIFE

UM-1 (D-size) Batteries
Approx. 18 hours of recording (EIAJ)
Approx. 9.5 hours of playback (EIAJ) with volume set at 3/4 position

The above battery service life is measured according to the conditions set forth by EIAJ (Electronic Industries Association of Japan). As the battery service life varies with the method of operation and environmental conditions, use these values as reference.

Notes:

- The Extra Bass System effect may be different according to the program content of the music tape.
- When you playback the music tape which was recorded, with a high level, the playback sound may be distorted. In this case, set the Low Boost Switch to "OFF" position.
- When using with headphones, this system will not change to the headphones mode. (The extra bass sound will be heard from the Extra Bass Speaker.) So please turn off the Extra Bass Switch.

DISASSEMBLY INSTRUCTIONS

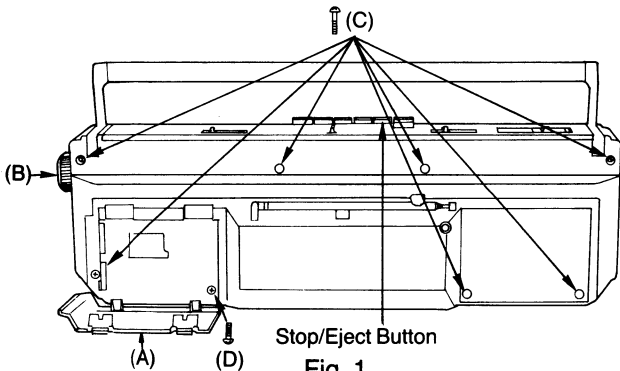


Fig. 1

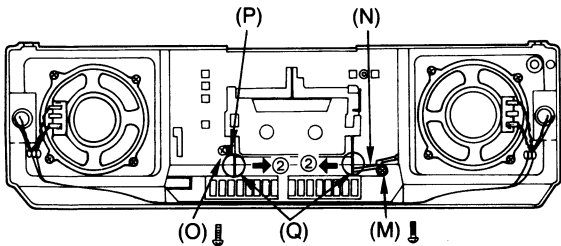


Fig. 3

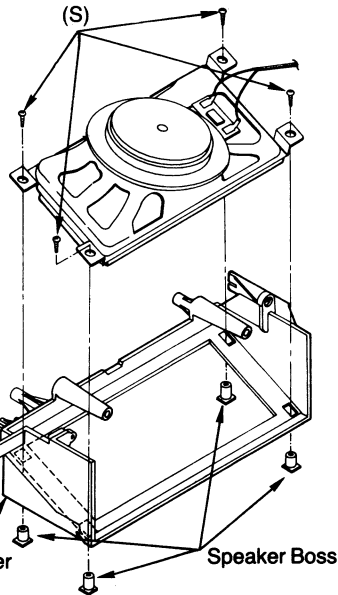


Fig. 5

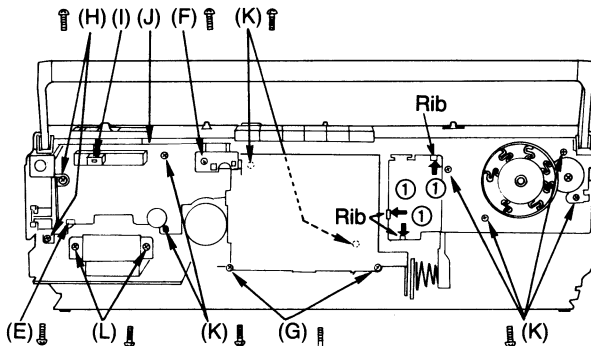


Fig. 2

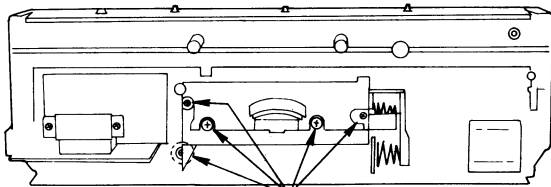


Fig. 4

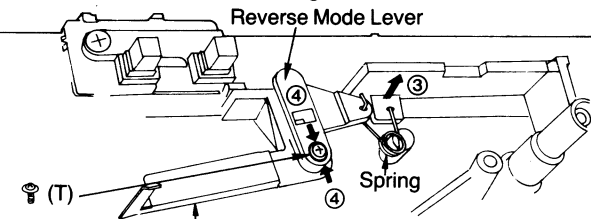
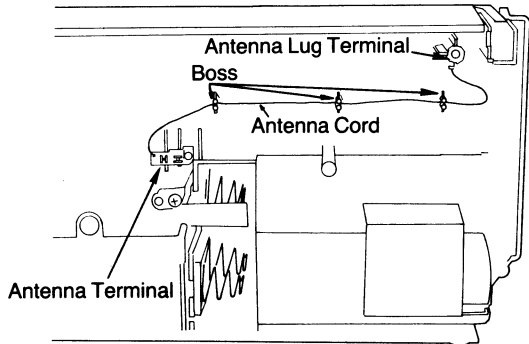


Fig. 6

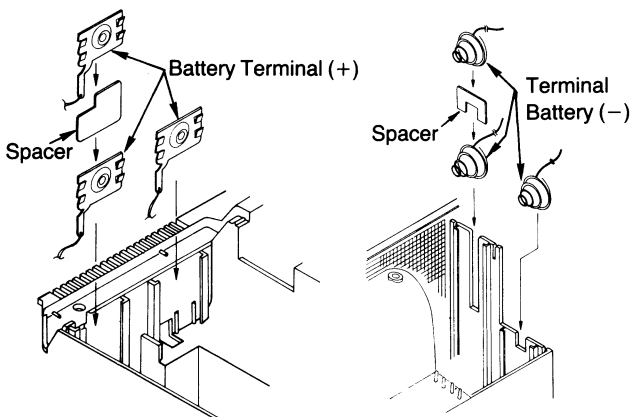
HOW TO FIX THE ANTENNA CORD



Pass the antenna cord through all of the bosses and arrange the cord properly.

Fig. 7

HOW TO FIX THE BATTERY TERMINAL



Be sure to attach the spacers correctly with respect to the plus (+) and minus (-) sides and in the right direction.

Fig. 8

Fig. 9

HOW TO FIX THE CHASSIS

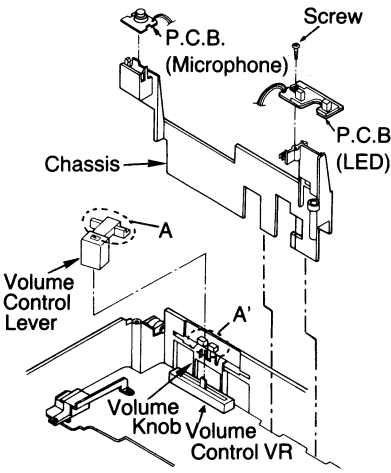


Fig. 10

- After attaching the main circuit board, insert the chassis, fit the microphone circuit board in place, and secure the LED circuit board in place with a screw.
- Insert the volume control lever in the volume control VR, and attach A to A'.

Ref. No.	Shown in Fig.—	To remove —	Remove —
1	1	Front Cabinet	Remove the battery cover (A)×1
2	1		Knob (B)×1
3	1		Screw (3×50) mm (C)×7
4	1		Screw (3×12) mm (D)×1
5	1		Push the Stop/Eject button
6	2		Socket (CP1) (E)×1
7	2	LED Circuit Board	Screw (3×12) mm (F)×1
8	2	Equalizer Circuit Board	Push the ribs in the direction of the arrow ① and remove the equalizer circuit board.
9	2	Mechanism	Screw (3×25) mm (G)×2
10	2	Jack Holder & Jack Board	Screw (3×12) mm (H)×2
11	2	Main Circuit Board	Volume operation control (I)×1
12	2		Chassis (J)×1
13	2	Cassette Compartment	Screw (3×12) mm (K)×8
14	2		Screw (3×12) mm (L)×2
15	3		Screw (3×8) mm (M)×1
16	3		Cassette compartment spring (N)×1
17	3		Screw (3×8) mm (O)×1
18	3	Reverse Mode Arm	Dumper gear (P)×1
19	3		Push the cassette compartment arm in the direction of arrow ② (Q)×2
20	4	Extra Bass Speaker Holder	Screw (3×12) mm (R)×5
21	5	Extra Bass Speaker	Screw (3×8) mm (S)×4
22	6	Reverse Mode Arm	Screw (2×6) mm (T)×1
23	6		Remove the spring in the direction of arrow ③.
24	6		Push the boss in the direction of arrow ④ and remove the reverse mode lever.

DIAL SETTING POINT

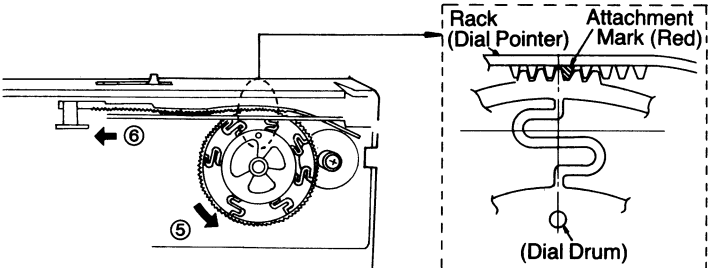
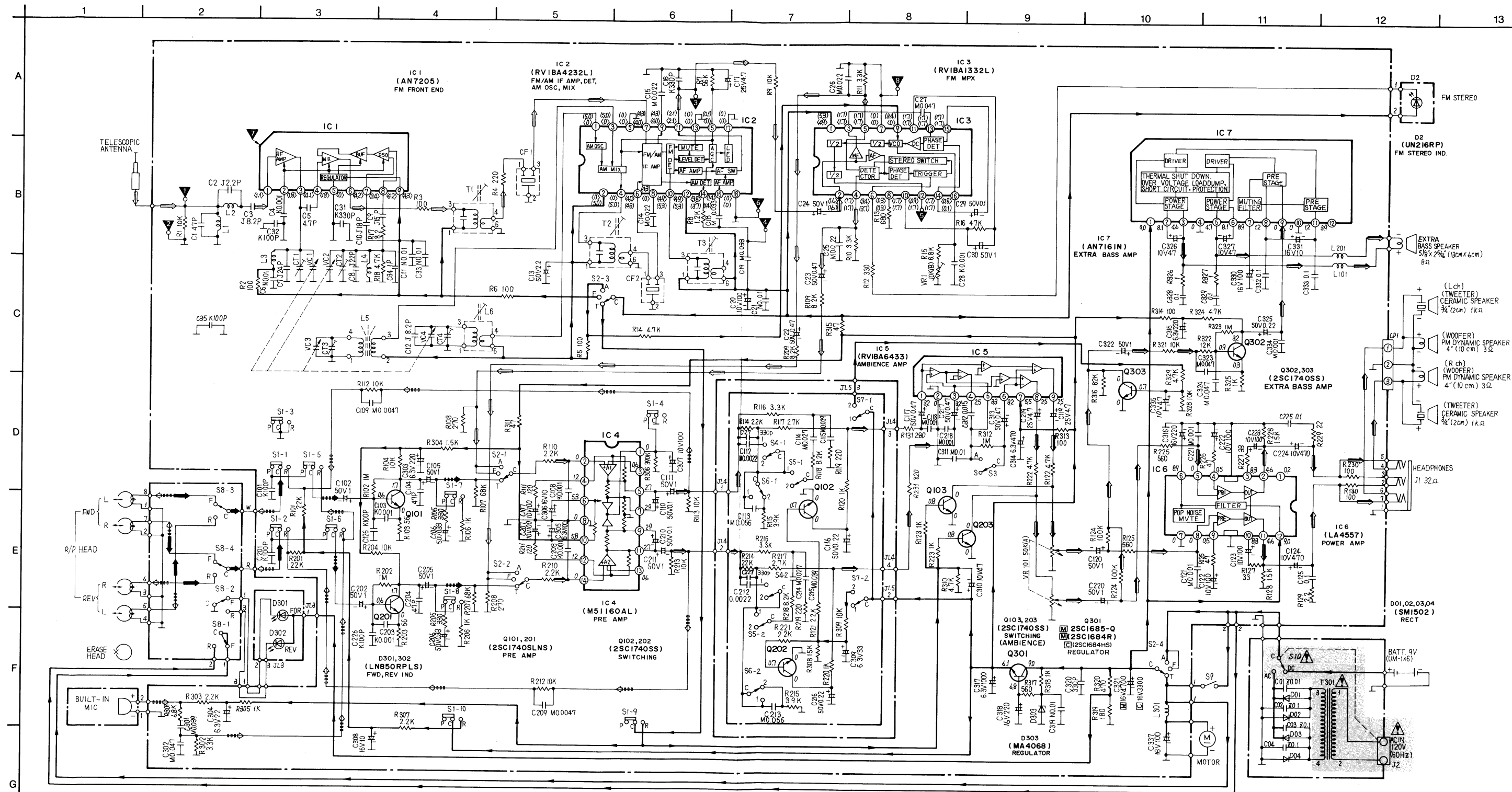


Fig. 11

Fig. 12

- Turn the dial drum in the direction of arrow ⑤, and slide the rack (dial pointer) in the direction of arrow ⑥. (See Fig. 11.) (Position so that the attachment mark on the dial drum is at the top.)
- Attach the dial pointer so that the relative position of the attachment mark on the dial drum and the fifth red marking from the right on the rack (dial pointer) is as shown in Fig. 12.

SCHEMATIC DIAGRAM



[M]...For U.S.A.
 [C]...For Canada.

Notes:

- S1-1~S1-10: Record/Playback switch in "Playback" position. (P...Playback, R...Record)
- S2-1~S2-4: Function select switch in "TAPE/POWER OFF" position. (T...TAPE/POWER OFF, F...FM, A...AM)
- S3: Ambience switch in "Stereo" position. (A...Ambience, S...Stereo)
- S4-1, S4-2: High boost switch in "OFF" position. (1...ON, 2...OFF)
- S5-1, S5-2: Middle boost switch in "OFF" position. (1...ON, 2...OFF)
- S6-1, S6-2: Low boost switch in "OFF" position. (1...OFF, 2...ON)

- S7-1, S7-2: Extra bass system (XBS) switch in "OFF" position. (1...OFF, 2...ON)
- S8-1~S8-4: Direction switch in "Forward" position. (F...Forward, R...Reverse)
- S9: Motor switch in "OFF" position.
- S10: AC/DC IN switch in "DC" position.
- VR1: FM VCO Adjustment VR.
- DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
- Battery current: No signal 116 mA

Maximum output (radio) 745 mA
 Maximum output (playback) 1025 mA
 Maximum output (record) 230 mA

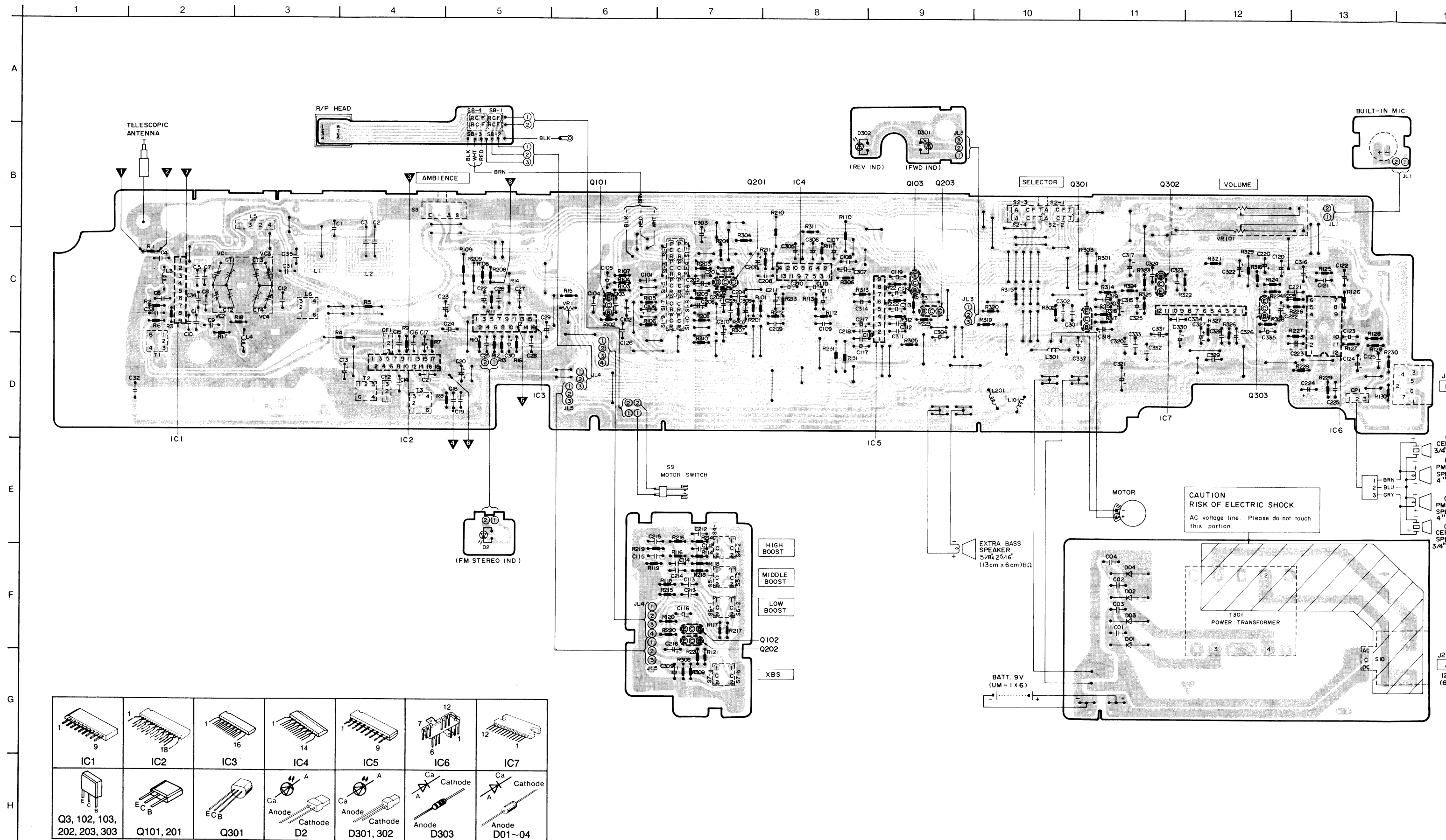
15. The mark (▼) shows test point e.g. ▼ = test point 1.

16. Important safety notice (Δ)

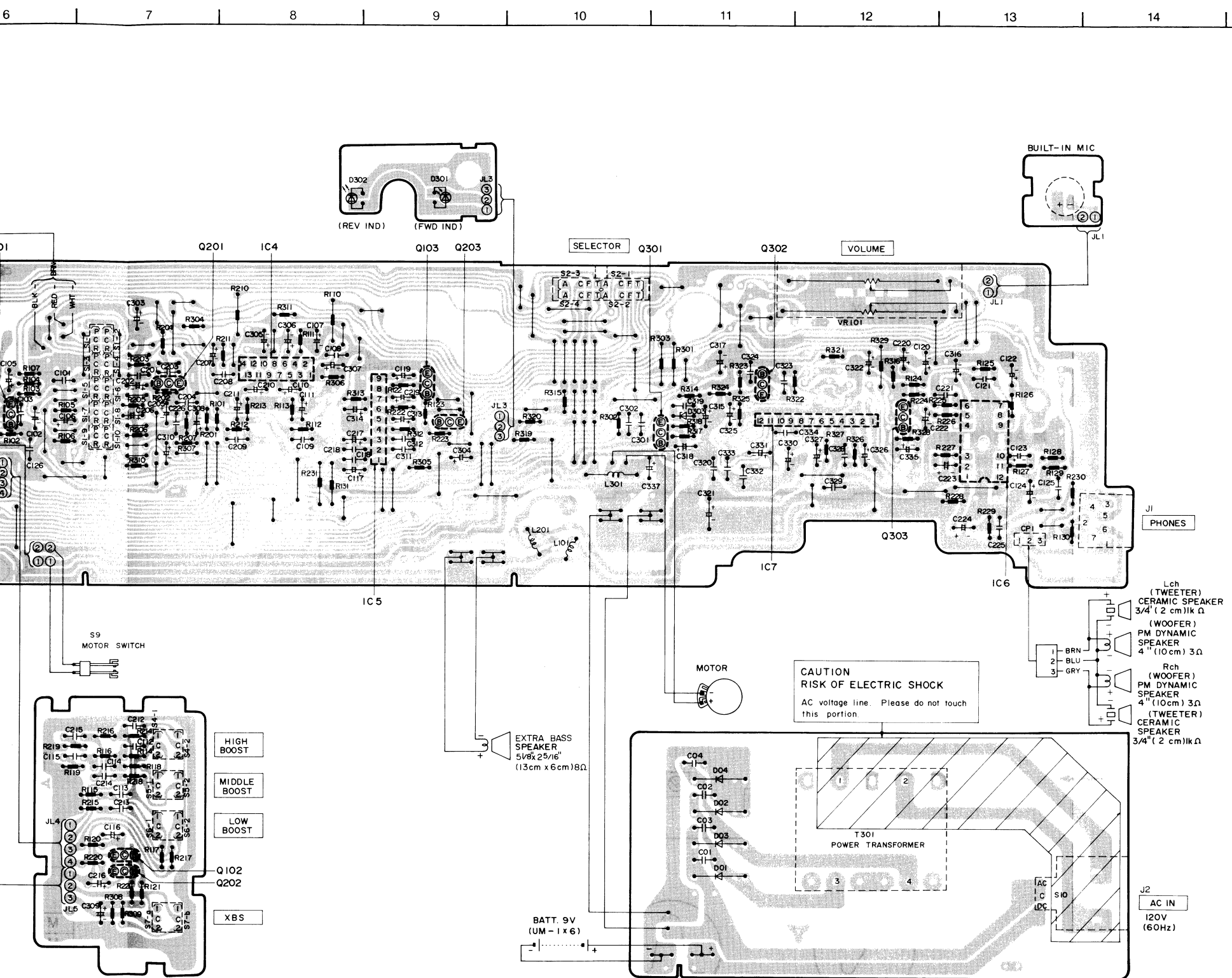
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

• This schematic diagram may be modified at any time with the development of new technology.

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



AND WIRING CONNECTION DIAGRAM



ELECTRICAL PARTS LIST

Numbering System of Resistor					Numbering System of Capacitor						
Example	ERD	25	F	J	101	Example	ECKD	1H	102	Z	F
Type	Wattage	Shape	Tolerance	Value (100Ω)	2R2	Type	Voltage	Value (1000 pF)	Tolerance	Peculiarity	
ERX	2	AN	J	2R2	ECEA	50	M	R47			
Type	Wattage	Shape	Tolerance	Value (2.2Ω)	Type	Voltage	Peculiarity	Value (0.47 μF)			

Resistor Type	Wattage	Tolerance
ERD: Carbon	10 : 1/8 W	J : ±5%
ERD: Metal Film	12 : 1/2 W	
ERX: Metal Film	25 : 1/4 W	
ERQ: Fuse Type Metal	1 : 1 W	
RRD: Carbon (Chip Type)	18 : 1/8 W	

REPLACEMENT PARTS LIST
Important safety notice
Components identified by † mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
[M] ... For U.S.A.
[C] ... For Canada

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA: Electrolytic	0J : 6.3 V	2H : 500 V DC	C : ±0.25 pF
ECCD: Ceramic	1A : 10 V	1 : 100 V	J : ±5%
ECKD: Ceramic	1C : 16 V	DKC : 400 V AC	K : ±10%
ECQM: Polyester	1E : 25 V		Z : +80%, -20%
ECQP: Polypropylene	1H : 50 V		P : +100%, -0%
ECET: Electrolytic	1V : 35 V		
ECEA□□□□: Non Polar Electrolytic	50 : 50 V		
ECU□□□□: Ceramic (Chip Type)	25 : 25 V		
ECUX: Ceramic (Chip Type)	16 : 16 V		

Ref. No.	Part. No.	Ref. No.	Part. No.	Ref. No.	Part. No.	Ref. No.	Part. No.
CAPACITORS				RESISTORS			
C01,02,03,04	ECKD1H103ZF	C28	ECQM1H102KV	C325	ECEA1HUR22	R108,208	ERD16TJ271
C1,104,204	RCBS1H470JL	C29,110,210	ECEA1HUOR1	C330,337	ECEA1CU101	R109,209	ERD25FJ822
C2	ECBT1H2R2K	C32,35,101,126,201,226		C331	ECEA1CU100	R110,210,303	ERD25FJ222
C3	ECBT1H8R2K					R111,211	ERD16TJ121
C4,103,108,118,121,203,208,217,221,334	RCBS1H102KB					R112,212	ERD16TJ223
C5	RCBS1H4R7K					R113,213	ERD16TJ392
C6,11,21,33,319	RCBS1C103NY					R114,214	ERD16TJ332
C7	RCBS1H220JC					R115,215	ERD16TJ272
C8	RCBS1H150JL					R116,216	ERD16TJ822
C9	RCBS1H180JL					R117,217	ERD16TJ221
C10	RCBS1H8R2K					R118,218	ERD16TJ102
C12	ECEA1HU2R2					R119,219	ERD16TJ222
C13	ECFT1E223MD					R120,220	ERD16TJ104
C14,15,25,26	RCBS1H331KB					R121,221,307	ERD16TJ561
C16,31,127,227,320	ECFT1E333MD					R122,222,317	
C17,119,219	ECEA1AU101					R123,223,311	ERD16TJ470
C18,19	ECEA1HUR47					R124,224	ERD16TJ330
C20,107,122,123,207,222,223,307	ECEA1HU010					R125,225,304	ERD16TJ152
C22,23,117,217,313						R126,226,309	ERD16TJ2R2
C24,30,102,105,111,120,202,205,211,220,322						R127,227	ERD16TJ821
C27,302,323,324						R128,228,304	ERD25FJ682
						R129,229	ERD16TJ394
						R130,230	ERD16TJ153
						R131,231	ERD16TJ103
						R132,232	ERD16TJ823
						R133,233	ERD16TJ181
						R134,234	ERD16TJ471
						R135,235	ERD16TJ123
						R136,236	ERD16TJ1R0

Ref. No.	Part. No.	Part Name & Description	Ref. No.	Part. No.	Part Name & Description
INTEGRATED CIRCUITS			TRANSFORMERS		
IC1	AN7205	IC (FM FRONT END)	T1,3	RL14B153	IFT, FM 1st, 2nd
IC2	RV1BA4232L	IC (FM/AM IF AMP, DET, AM OSC, MIX)	T2	RL2B458	IFT, AM
IC3	RV1BA1332L	IC (FM MPX)	T301	RLT5K3C9A	Power Transformer Δ
IC4	M51160AL	IC (PRE AMP)			
IC5	RV1BA6433	IC (AMBIENCE AMP)			
IC6	LA4557	IC (POWER AMP)			
IC7	AN7161N	IC (EXTRA BASS AMP)			
TRANSISTORS			VARIABLE CAPACITORS		
Q101,201	2SC1740SLNS	Transistor (PRE AMP)	VC1,2,3,4 (CT1,2,3,4)	RCV4LC2R1A	Variable Capacitor/with Trimmer Capacitor
Q102,202	2SC3312R	Transistor (SWITCHING)			
Q103,203,302,303	2SC1740SS	Transistor (SWITCHING, WOOFER AMP)			
Q301 [M]	2SC1685-Q	Transistor (REGULATOR) [For U.S.A.]			
Q301 [C]	2SC1684HS	Transistor (REGULATOR) [For Canada]			
DIODES & RECTIFIERS			VARIABLE RESISTORS		
D01,02,03,04	SM1502	Diode (RECT)	VR1	EVND4AA00B14	FM VCO Adjustment VR, 10K (B)
D2	LN216RP	LED (FM STEREO IND)	VR101	EWANA1C10A54	Volume Control VR, 50K (A)
D301,302	LN850RPLS	LED (FWD, REV IND)			
D303	MA4068	Diode (REGULATOR)			
COILS			CERAMIC FILTERS		
L3	RLD4Y44	Antenna Coil, FM	CF1	RVF107HRWZ	Ceramic Filter (10.7 MHz)
L4	RLD4Y53	Oscillator Coil, FM	CF2	RVFSFU455B	Ceramic Filter (455 kHz)
L5	RLF2V80	Antenna Coil, AM			
L6	RLQ2B105	Oscillator Coil, AM			
L101,201	RLQY75S7	Coil, Choke			
L301	RLQZB220K	Coil, Choke			
SWITCHES			JACKS		
S1	RSH2J05Z	Switch, R/P	J1	RJJD7S2Z	Jack, Headphones
S2	RSS3D24Z	Slide Switch, Function	J2 (S10)	RJ1A3Y	Jack, AC IN Δ
S3	RSS2A59Z	Slide Switch, Ambience			
S4,5,6,7	ESB6443	Push Switch, Equalizer, XBS			
S8	RSS2D26Z	Push Switch, FWD/REV			
S9	RSH1A67Z	Reaf Switch, Motor			

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum.	5. Set extra bass system (XBS) switch to OFF.
2. Set equalizer switch to OFF.	6. Set power source voltage to 9V DC.
3. Set ambience switch to OFF.	7. Output of signal generator should be no higher than necessary to obtain an output reading.
4. Set function select switch to AM or FM.	

■ AM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS	
	CONNECTIONS	FREQUENCY					
AM-IF ALIGNMENT							
1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455kHz 30% Mod. at 400Hz	Point of non-interference. (on/ about 600kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
MW-RF ALIGNMENT							
2)	AM	"	511kHz	Tuning capacitor fully closed.	Output meter across voice coil.	L6 (AM OSC Coil)	Adjust for maximum output.
3)	AM	"	1650 kHz	Tuning capacitor fully open.	"	CT4 (AM OSC Trimmer)	"
4)	AM	"	550kHz	Tune to signal.	"	(※1) L5 (AM ANT Coil)	Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
5)	AM	"	1,500kHz	"	"	CT3 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
(※1) Cement antenna bobbin with wax after completing alignment.							

■ FM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT.	REMARKS	
	CONNECTIONS	FREQUENCY					
FM-IF ALIGNMENT							
(1)	FM	Connect to test point ▼ through 0.001μ. Negative side to test point ▼.	10.7MHz (400Hz SWP.)	Point of non-interference. (on/ about 90MHz)	Connect vert. amp. of scope to test point ▼. Negative side to test point ▼.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
(2)	FM	"	"	"	"	T3(FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 3.)
FM-RF ALIGNMENT							
(3)	FM	Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼.	86.2MHz	Variable capacitor fully closed.	Output meter across voice coil.	L4 (FM OSC Coil)	(※2) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	"	CT2 (FM OSC Trimmer)	"
(5)	FM		90MHz	Tune to signal.	"	L3 (FM ANT Coil)	"
(6)	FM		106MHz	"	"	CT1 (FM ANT Trimmer)	(※2) Adjust for maximum output. Repeat steps(3)~(6).
(※2) Three output responses will be present; proper tuning is the center frequency.							

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	92 MHz, 60dB Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼.	▼...(+) ▼...(-)	VR1	19kHz	Adjust VR1, for 19kHz (±100Hz) reading on electronics counter.

■ TAPE ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8kHz, -20dB)	SP OUT (AC voltmeter & Oscilloscope)	Maximum output.	Azimuth screw	Playback mode (Refer to Fig. 4)
Tape Speed	QZZCWAT (3kHz)	SP OUT (Frequency counter)	3000±15Hz	Motor Volume	Playback mode (Refer to Fig. 5)

■ ALIGNMENT POINT

* Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

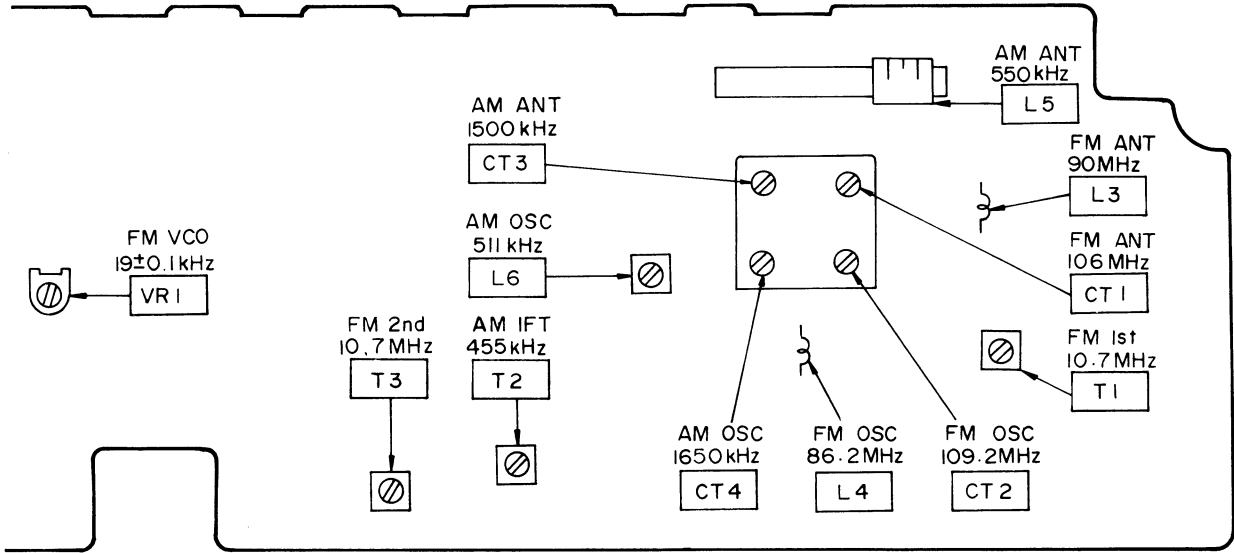


Fig. 1

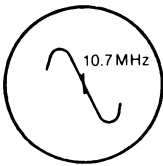


Fig. 2

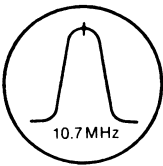


Fig. 3

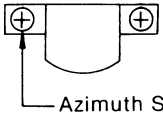


Fig. 4

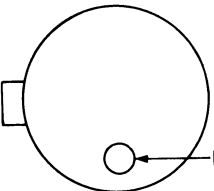


Fig. 5

■ SPRING

M19

M21

M19

M17

- M17
- M18
- M19
- M21
- M23
- M24
- M35
- M36

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	92 MHz, 60dB Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼.	▼...(+) ▼...(-)	VR1	19kHz	Adjust VR1, for 19kHz (± 100 Hz) reading on electronics counter.

■ TAPE ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8kHz, -20dB)	SP OUT (AC voltmeter & Oscilloscope)	Maximum output.	Azimuth screw	Playback mode (Refer to Fig. 4)
Tape Speed	QZZCWAT (3kHz)	SP OUT (Frequency counter)	3000 ± 15 Hz	Motor Volume	Playback mode (Refer to Fig. 5)

■ ALIGNMENT POINT

* Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

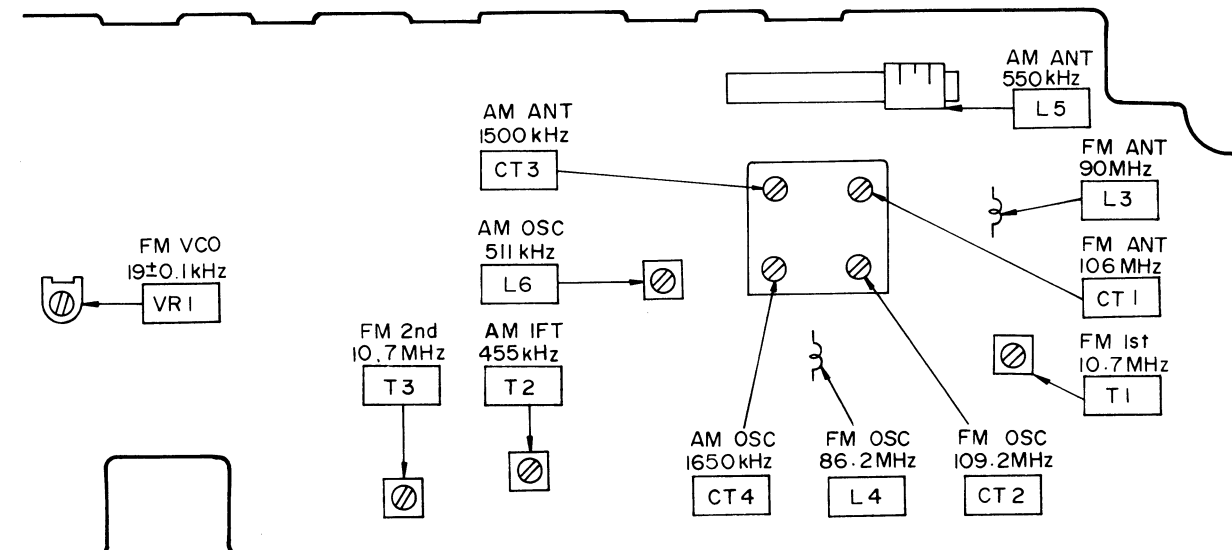


Fig. 1

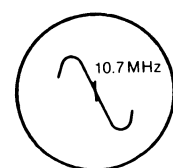


Fig. 2

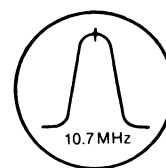


Fig. 3

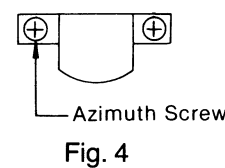


Fig. 4

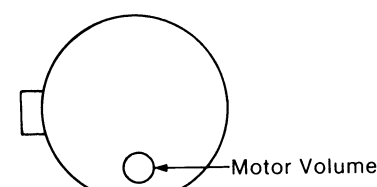
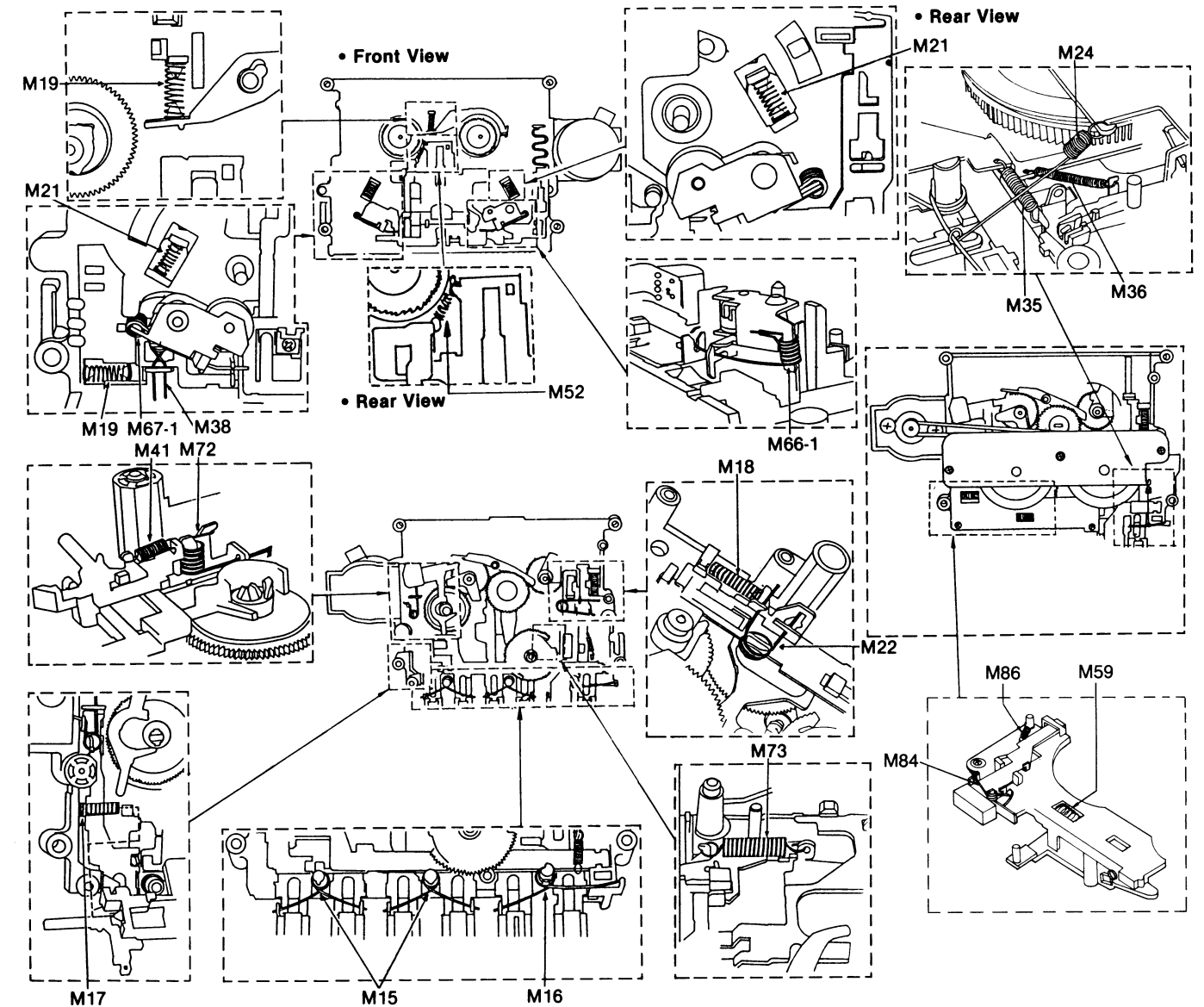


Fig. 5

■ SPRING LOCATION

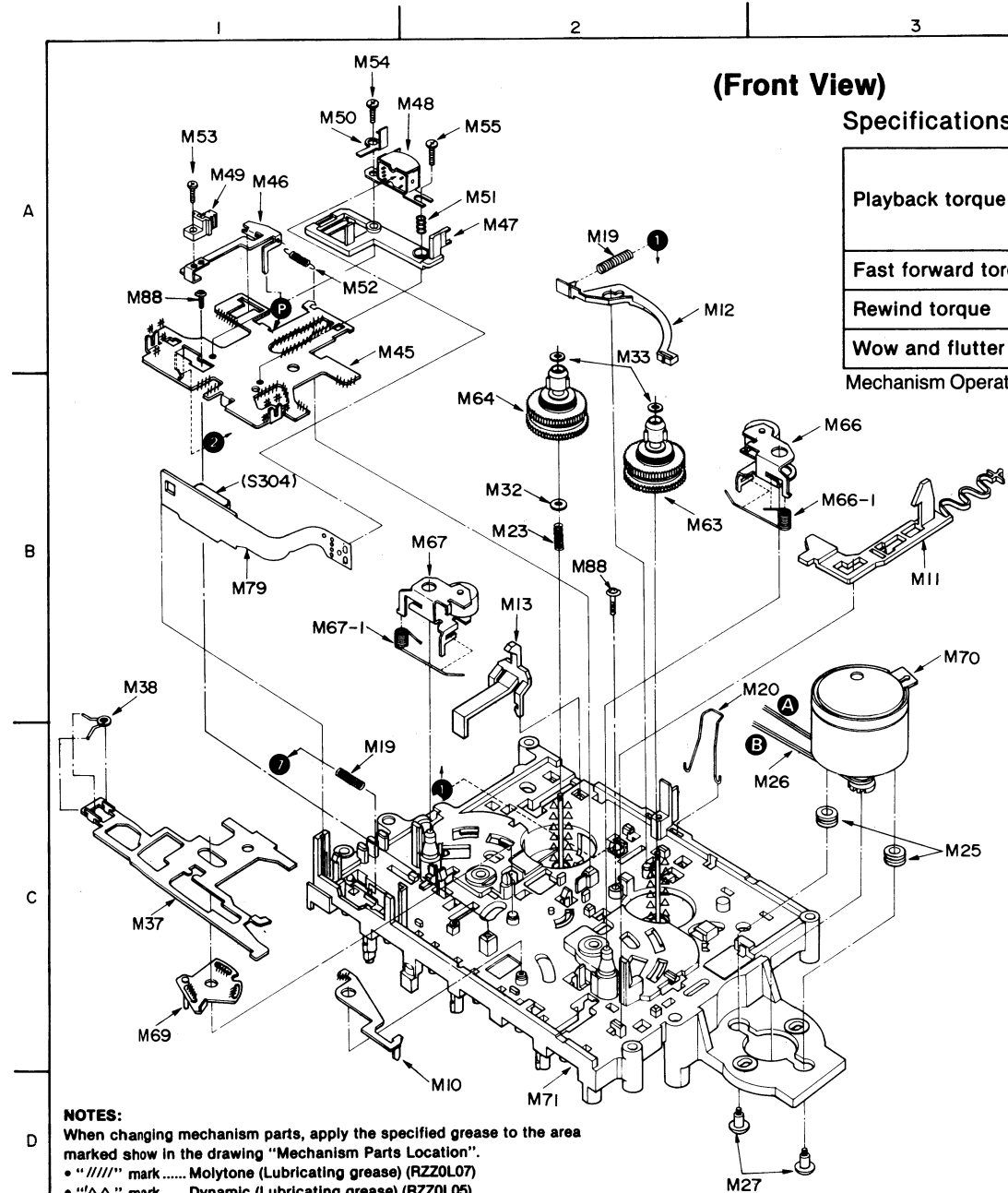


	ϕ	$\phi \times d$ (mm)		$\phi \times d$ (mm)
M17	11.2	3.5	M41	8
M18	15.8	3.7	M44	10
M19	11.2	3.3	M51	4.4
M21	10.9	3.3	M52	7.4
M23	6.4	3.9	M59	10.4
M24	28.9	3	M65	10.9
M35	9.1	2.6	M73	12.3
M36	1.1	3	M86	11.5

		$d1$: Long $d2$: Short	$d1 \times d2$ (mm)
M15	22×21.2	M38	15×15
M16	30.3×23	M66-1	27.2×10.3
		M84	14×7

	$\phi 1$: Long $\phi 2$: Short	$\phi 1 \times \phi 2$ (mm)	
M22	13×11.5	M72	20×9
M67-1	27.1×10.3		

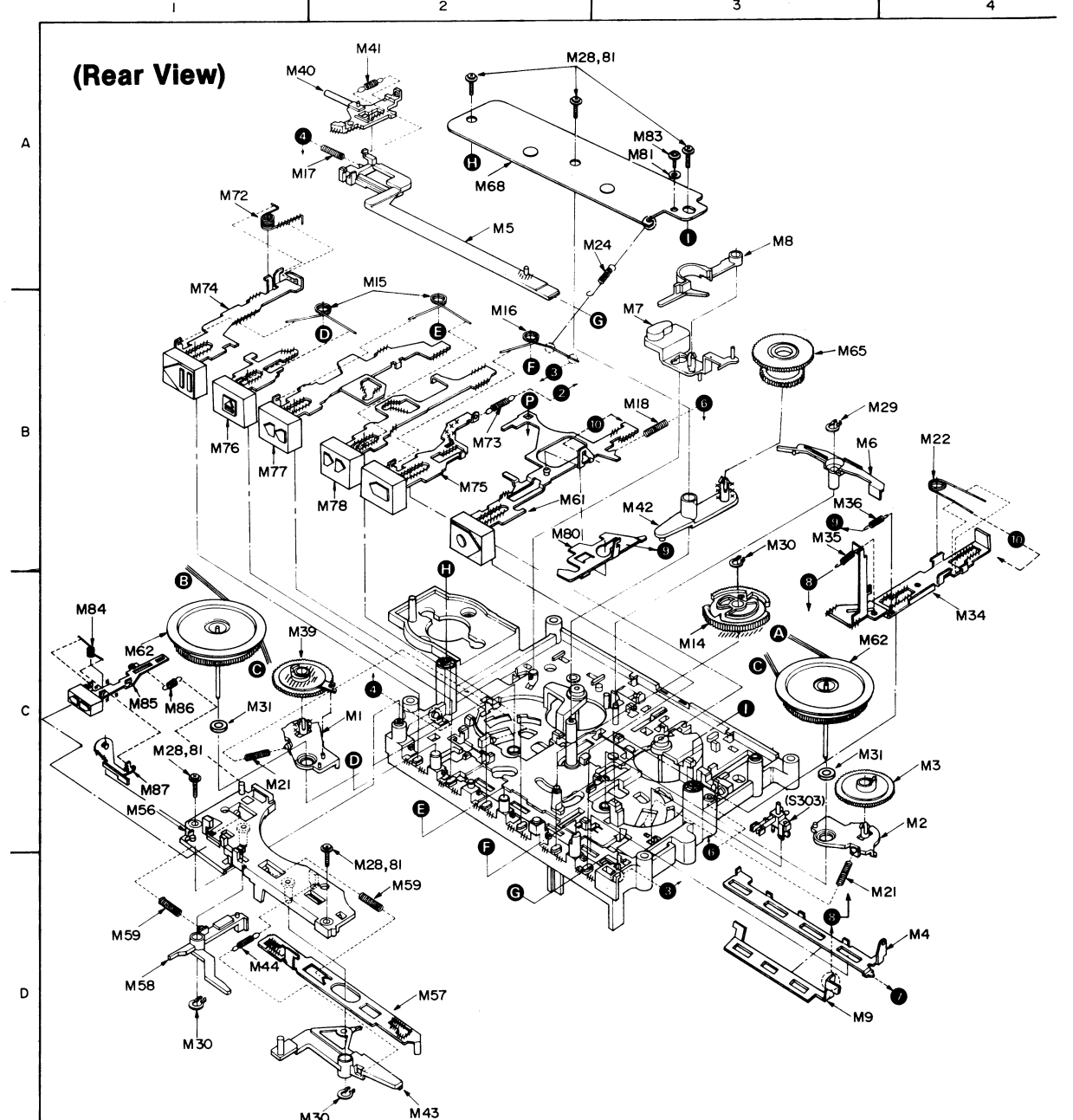
MECHANISM PARTS LOCATION



M1 ~ 20	19	10	13	19	12	20	11
M21 ~ 50	38 37 49 46	45 50	48 47	23 32	33	27 26	25
M51 ~	88 69 53	79	67-1 52 54	55 51 67 64	71	88 63	66 66-1 70

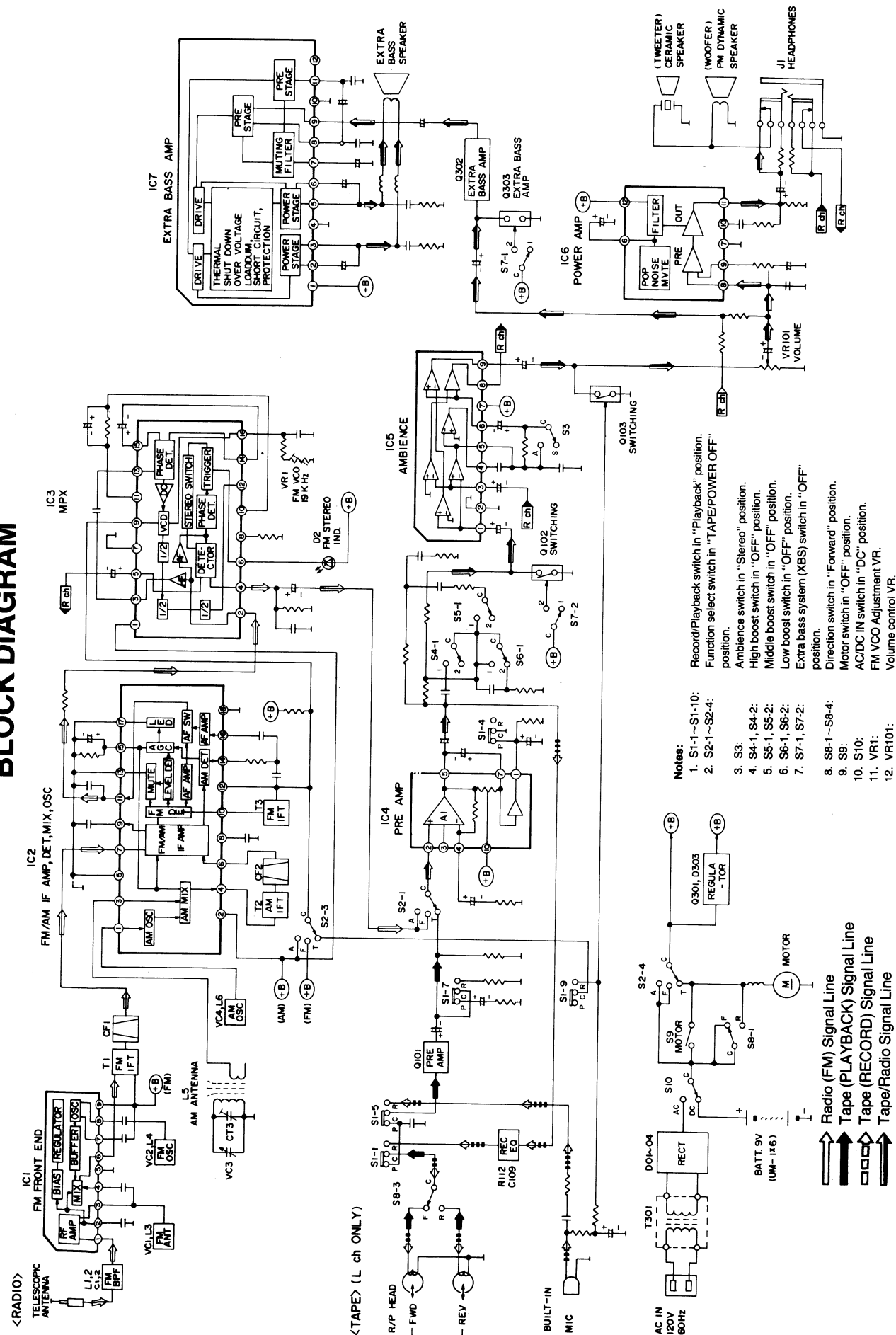
REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS			M 17	RUQK10Z	Spring (Lock Rod)	M 31	RNWK256Z	Washer (Flywheel)	M 46	RNLK18Z	Lever, Erase Head	M 61	1NRAKFM40Z	Record Rod Ass'y	M 76	5NRAKFM40Z	Stop/Eject Rod Ass'y
M 1	RNLK4Z	Lever, Idler (FWD)	M 18	RUQK11Z	Spring (Record Rod)	M 32	RNWK208Z	Washer (Take up Reel Table (REV))	M 47	RUEK1Z	Spacer	M 62	1DWAK5165Z	Flywheel Ass'y	M 77	4NRAKFM40Z	FF Rod Ass'y
M 2	RNLK5Z	Lever, Idler (REV)	M 19	RUQK9Z	Spring (Leaf Switch)	M 33	QBW2008	Washer (Take up Reel Table M'tg)	M 48	RJH4C14YZ	Record/Playback Head	M 63	1DMAK5165Z	Take up Reel Table Ass'y (FWD)	M 78	3NRAKFM40Z	REW Rod Ass'y
M 3	RNGK5Z	Idler	M 20	RUWK12Z	Spring (Cassette Pressure)	M 34	RNLK42Z	Lever, R/P Switch Operation	M 49	RJH2C03XX	Erase Head	M 64	2DMAK5165Z	Take up Reel Table Ass'y (REV)	M 79	RUPK38Z	F.W.C R/P Head
M 4	RNLK26Z	Lever, Leaf Switch Operation	M 21	RUQK7Z	Spring (Idler)	M 35	RUDK3Z	Spring (Switch ON)	M 50	RULK8Z	Terminal, Earth	M 65	2NGAK5165Z	FF Gear Ass'y	M 80	RNLK41Z	Lever, Record Release
M 5	RNRK3Z	Rod, Lock	M 22	RUWK16Z	Spring (R/P Switch Operation)	M 36	RUDK8Z	Spring (Release)	M 51	QBC1322	Spring (Head Azimuth Adjustment)	M 66	5NLA5165Z	Pinch Roller Ass'y (FWD)	M 81	XWG2	Washer (Flywheel Holding Plate, REV Block Plate, etc. M'tg)
M 6	RNLK11Z	Lever, Reverse Reel	M 23	RUQK17Z	Spring (Back Tension)	M 37	RNLK28Z	Lever (A), Reverse Operation	M 52	QBT1989	Spring (Auto Stop Operation Lever)	M 66-1	RUWK18Z	Spring (Pinch Roller Ass'y (FWD))	M 83	XTN2 + 5B	Screw (Lug Terminal M'tg)
M 7	RNLK6Z	Lever, Auto Stop Direction	M 24	RUDK5Z	Spring (Earth)	M 38	RUWK11Z	Spring (Reverse Operation Lever (A))	M 53	XQN17 + C6	Screw (Erase Head M'tg)	M 67	6NLA5165Z	Pinch Roller Ass'y (REV)	M 84	RUWK26Z	Spring, Direction Rod
M 8	RNLK7Z	Lever, Auto Stop Operation	M 25	QBG1420	Cushion, Motor	M 39	1NGAK5165Z	Idler (FWD) Ass'y	M 54	XS82D6	Screw (Record/Playback Head M'tg)	M 67-1	RUWK15Z	Spring (Pinch Roller Ass'y (REV))	M 85	7NRAKFM40Z	Direction Rod Ass'y
M 9	RNLK30Z	Lever, R/P Switch	M 26	RDVK9Z	Belt, Flywheel	M 40	RNLK13Z	Lever, Mode Change	M 55	XS82D7	Screw (Head Azimuth Adjustment)	M 68	1MQAK5165Z	Plate, Flywheel Holding	M 86	RUDK6Z	Spring, Direction Rod Ass'y
M 10	RNLK25Z	Lever, Pause	M 27	QHOK0013	Screw (Motor M'tg)	M 41	QBT2089	Spring (Auto Stop Direction)	M 56	RUEK3Z	Plate, Reverse Block	M 69	7NLA5165Z	Reverse Operation Lever (B) Ass'y	M 87	RNLK31Z	Plate, Direction
M 11	RNLK9Z	Lever, Eject	M 28	XTN2 + 10B	Screw (Flywheel Holding Plate, REV Block Plate M'tg)	M 42	RNLK3Z	Lever, FF	M 57	RNLK27Z	Lever, Reverse Control	M 70	1JQAK5165Z	Motor Ass'y	M 88	XTW2 + 5S	Screw (Head Base M'tg)
M 12	RNLK8Z	Lever, Auto Stop Safety	M 29	XUEV25VW	C Ring (Reverse Reel Lever M'tg)	M 43	RNLK12Z	Lever, Reverse	M 71	2UAAK5165Z	Mechanism Base	M 72	RUWK17Z	Spring (Pause Rod)			
M 13	RNLK10Z	Lever, Erase Safety	M 30	XUEV3VW	C Ring (Reverse Operation Gear, etc. M'tg)	M 44	RUDK4Z	Spring (Reverse)	M 73	RUDK2Z	Spring (Head Base)	M 74	6NRAKFM40Z	Pause Rod Ass'y			
M 14	RNGK6Z	Gear, Reverse Operation				M 45	RUAK12Z	Head Base	M 75	2NRAKFM40Z	Playback Rod Ass'y						
M 15	RUWK13Z	Spring (Rod (A))															
M 16	RUWK14Z	Spring (Rod (B))															

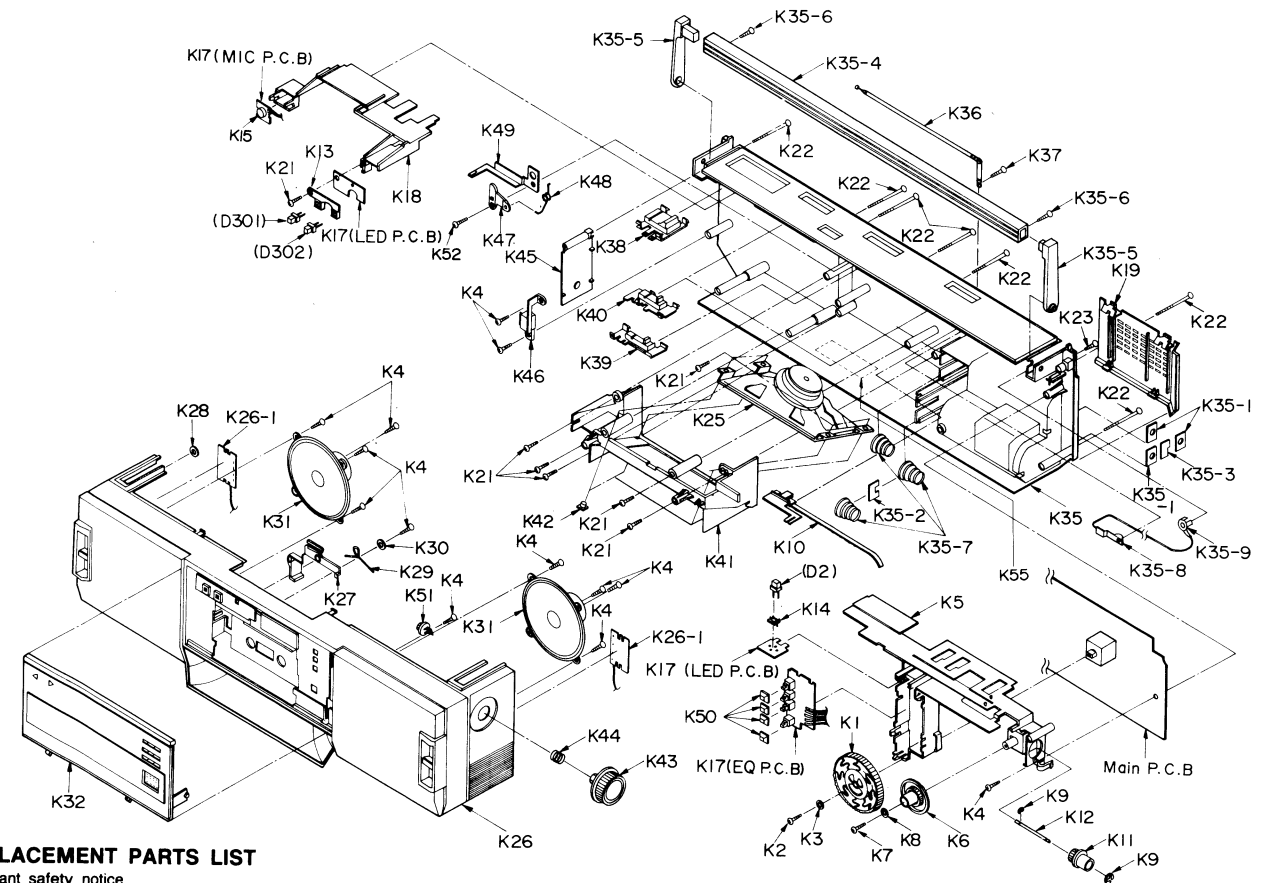


M1 ~ 30	28 30	21 17 28 1	15	5	16	28	24 7 18	14	30 8	9 29	6 21 4	2 22 3
M31 ~ 60	59 58 56	31 44 40	39 41	59 57 43			42			35 36	31	34
M61 ~	84 85 87 86 62 81	74 76 72 77	78	81	75 73 68 61 80	81	81	83	65	62		

BLOCK DIAGRAM



CABINET PARTS LOCATION



REPLACEMENT PARTS LIST

Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Notes:

1. The letter in round brackets in the Ref. No. column indicates the shipping destination.
(M)...For U.S.A.
(C)...For Canada
2. The letter in the circle after the part name indicates the color of the part.
Ⓚ...Black, Ⓢ...Silver, Ⓦ...White

Ref. No.	Part. No.	Part Name & Description	Ref. No.	Part. No.	Part Name & Description	Ref. No.	Part. No.	Part Name & Description
CABINET PARTS								
K1	RDGK5603Z	Drum, Dial Ⓚ	K26	RYMXFM40M	Front Cabinet Ass'y Ⓚ	K41	RMSK1Z	Holder, XBS Speaker Ⓚ
K2	XSN26+6	Screw Ⓚ2.6×6, Dial Drum M'tg	K26-1	RWEXFM40M	Speaker, Tweeter Ass'y	K42	RMSK2Z	Boss, XBS Speaker M'tg
K3	XWG26	Washer, Dial Drum M'tg	K27	RUBK7Z	Lever, Eject	K43	RBNK3Z	Knob, Tuning Ⓚ
K4	XTV3+8G	Screw Ⓚ3×8, Speaker, Dumper Gear, etc. M'tg	K28	RHG720Z	Rubber, Built-in Microphone	K44	RDS5032Z	Spring, Tuning Knob
K5	RUAK15Z	Dial Chassis Ⓚ	K29	RUWK21Z	Spring, Cassette Compartment	K45	RKEK4Z	Jack Plate Ⓚ
K6	RDGK5605Z	Relay Gear Ⓚ	K30	XWG3F12	Washer, Cassette Compartment	K46	RUEK1Z	Holder, Jack
K7	XTN3+8G	Screw Ⓚ3×8, Relay Gear M'tg	K31	EAS10P241SH	Spring M'tg	K47	RUBK8Z	Lever, Reverse Mode
K8	XWG3	Washer, Relay Gear M'tg	K32	RYQXFM40M	Speaker, Woofer	K48	RUBK22Z	Spring, Reverse Mode Lever
K9	XUC2FT	E Ring	K33	QJS03001T	Cassette Compartment Ass'y	K49	RUBK9Z	Arm, Reverse Mode
K10	RDPK509Z	Pointer, Dial (Rack) Ⓚ	K34	QJT1089	Socket (CP1/3 Pin)	K50	RMWK1Z	Cap, EQ Switch
K11	RDGK5604Z	Tuning Gear Ⓚ	K35	RYFXFM40M	Terminal Socket	K51	QYQK0175	Dumper Gear Ⓚ
K12	RDXK1Z	Shaft, Tuning Gear	K35-1	RJC205Z	Rear Cabinet Ass'y Ⓚ	K52	XTW2+6S	Screw Ⓚ2×6, Reverse Mode Arm M'tg
K13	RMPK4Z	Holder, FWD, REV IND	K35-2	RHRK5511Z	Terminal Battery (+)	K53	RHGK705Z	Rubber
K14	RMPK5Z	Holder, FM STEREO IND	K35-3	RHRK5510Z	Spacer, Battery Terminal (-)	K54	RPGK62Z	P.C.B. Power Supply
K15	RJM165Z	Built-in Microphone	K35-4	RYHFXFM40M	Spacer, Battery Terminal (+)	K55 (C)	RGTK31Z	Name Plate [For Canada]
K16	QJP03S005T	Plug (CP1/3 Pin)	K35-5	RKX334Y	Handle Ass'y Ⓚ	ACCESSORIES		
K17	RUPK60Z	P.C.B., LED, EQ, MIC, etc.	K35-6	XTS3+8GZ	Arm, Handle Ass'y M'tg Ⓚ	A1 (M)	RJA22X	Power Cord, AC Δ
K18	RUKK16Z	Chassis Ⓚ	K35-7	QJB0016	Terminal Battery (-)	P1 (C)	RJA22Y	Power Cord, AC Δ
K19	RKKK7Z	Battery Compartment Ⓚ	K35-8	RJTK305Z	Terminal, Antenna	P2	RQXK4042Z	Operating Instructions
K20	RUBK10Z	Lever, Volume Control	K35-9	RJT514Z	Lug Terminal, Antenna	P3	RPEK120Z	Polyethylen Cover
K21	XTV3+12G	Screw Ⓚ3×12, P.C.B., Power Transformer, etc. M'tg	K36	XEARR150EAY	Telescopic Antenna	P4	RPEK119Z	Pad (Cassette Compartment)
K22	XTN3+50GFZ	Screw Ⓚ3×50, Cabinet M'tg Ⓚ	K37	XSN3+12BVS	Screw Ⓚ3×12, Telescopic Antenna M'tg	PACKINGS		
K23	XTN3+12GFZ	Screw Ⓚ3×12, Cabinet M'tg Ⓚ	K38	RBDK12Z	Knob, Volume Ⓚ	P1 (M)	RPKK1041Z	Gift Box [For U.S.A.]
K24	XTN3+25G	Screw Ⓚ3×25, Mechanism M'tg	K39	RBDK13Z	Knob, Reverse Mode Ⓚ	P1 (C)	RPKK1047Z	Gift Box [For Canada]
K25	EAS15S05A	Speaker, XBS	K40	RBDK14Z	Knob, Function, Ambience Ⓚ	P2	RPNK9007Z	Pad

KTB



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